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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/700,553

11/05/2003

Ayako Uji

01272.020640.

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06/23/2006

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EXAMINER

MRUK, GEOFFREY S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/700,553

Applicant(s)

UJI ET AL.

Examiner

Geoffrey Mruk

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 May 2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornell (US 6,109,719) in view of Bohorquez (US 5,736,995).

With respect to claim 1, Cornell discloses an inkjet recording apparatus for performing recording by ejecting ink onto a recording medium using a plurality of element substrates, the apparatus comprising: said element substrates (Fig. 2, elements 72, 78) each having plurality of heating means to eject the ink (Column 4, lines 40-47); a common support member (Fig. 1, element 10) on which a plurality of

element substrates are arranged (Column 3, lines 56-61), said common support member conducting heat among the element substrates (Column 3, lines 47-49).

With respect to claim 5, Cornell discloses an inkjet recording apparatus for performing recording by ejecting ink onto a recording medium using a plurality of element substrates, the apparatus comprising: said element substrates (Fig. 2, elements 72, 78) each having a plurality of heating means to eject the ink (Column 4, lines 40-47); a common plate support member (Fig. 1, element 10) on which a plurality of element substrates are arranged (Column 3, lines 56-61), said common support member conducting heat among the element substrates (Column 3, lines 47-49).

However, Cornell fails to disclose:

With respect to claim 1, a recording mode setting means for setting an element substrate that is to be used for recording and an element substrate that is not to be used for recording, from among the plurality of element substrates; and control means for heating the element substrate that is set by said recording mode setting means to be not used for recording to adjust the temperature of the element substrates to be used for recording utilizing heat conduction.

With respect to claim 2, wherein said control means causes the heating means for the element substrate that is not to be used for recording to generate heat such that the ink is not ejected from the element substrate.

With respect to claim 3, wherein said control means causes heating of the element substrate that is not to be used for recording while the element substrate to be used for recording performs recording.

With respect to claim 5, a discrimination means for discriminating between an element substrate that is to be used and an element substrate that is not to be used for the next recording to be performed; and control means for heating the element substrate discriminated by said discrimination means to be not used before the element substrate discriminated to be used for recording starts a recording operation to adjust the temperature of the element substrate to be used utilizing heat conduction.

With respect to claim 6, a heater for heating provided independently of the heating means is used as said control means.

Bohorquez discloses temperature control of thermal inkjet printheads where "Heating during the printing swath has been tried by adding additional heating elements or additional electronics to energize the print element heaters in parallel with the printing pulses. This method adds to the cost and complexity of the control and power electronics" (Column 3, lines 6-10). Although this method is not preferred by Bohorquez, "it has been tried" (Column 3, line 6).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the method of heating a printhead during a printing swath disclosed by Bohorquez in the printhead of Cornell. The motivation for doing so would have been "it would be advantageous to have an apparatus and a method for reducing the range of temperature and drop volume variation by heating the printhead during print" (Column 3, lines 10-14).

Response to Arguments

Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Anderson et al. (US 6,322,189 B1) discloses a multiple printhead apparatus where "It should be recognized that the heating element represented by reference numeral 43 illustrates the provision of a heating source within a printhead that can heat the ink to a desired temperature. If the ink expulsion mechanism 42 is a thermal actuated mechanism, it is possible that the expulsion mechanism can serve the function of ink expulsion and ink warming. Thus, expulsion mechanism 42 would provide the functions represented by reference numeral 43. This can be achieved, for example, by sending a signal pulse that is of sufficient duration to heat ink in firing chamber 41 to a desired temperature, but not long enough to expel ink, or by sending a reduced current signal" (Column 2, lines 20-31).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GSM
6/20/2006

GM



STEPHEN MEIER
SUPERVISORY PATENT EXAMINER